

## ABSTRACT

A transmitter site transmits a plurality of data signals over a shared spectrum in a code division multiple access communication system. Each transmitted data signal experiences a similar channel response. A combined signal of the transmitted data signals is received. The combined signal is sampled at a multiple of the chip rate. The channel response for the combined signal is determined. A first element of a spread data vector is determined using the combined signal samples and the estimated channel response. Using a factor from the first element determination, remaining elements of the spread data vector are determined. The data of the data signals is determined using the determined elements of the spread data vector.